REMARKS

Claims 1, 2, 4 and 5 have been amended. Claims 1 and 4 have been amended to clarify that the recycle toner detected is supplied into the developing device. Further amendments to claims 1, 2, 4 and 5 are to improve their readability without narrowing their scope. No new matter has been added. Claims 1-6 are pending.

Rejection under 35 U.S.C. § 103

Claims 1-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,508,793 to Kimura ("Kimura I") in view of JP 11-352758 to Kimura ("Kimura II"). Applicant respectfully traverses this rejection for at least the following reasons.

Independent claim 1, as amended, is directed to an image forming apparatus and recites "rotational torque of a stirring member disposed within a developing device and capacity of a recycle toner supplied into the developing device are detected." (emphasis added). Kimura I and Kimura II fail to suggest the detection as recited in claim 1, nor the advantages of such detection in controlling operation of the image forming apparatus.

Neither Kimura I nor Kimura II disclose detecting the capacity of recycle toner supplied into the developing device. While both Kimura I and Kimura II disclose a toner concentration sensor (toner concentration sensor 106 in Kimura I, and toner concentration sensor 104 in Kimura II), these toner concentration sensors detect concentration, not the capacity of toner within a developing device. In one non-limiting embodiment of the present invention, a level sensor 20 is employed for detecting capacity of toner. Neither Kimura I nor Kimura II disclose a level sensor, nor any other sensor, that detects the capacity of toner within a developing device. Thus, even if Kimura I and Kimura II were combined, the combination would not meet the limitations of claim 1.

Moreover, Kimura I and Kimura II fail to suggest the advantages of the detection as recited in claim 1, in controlling operation of the image forming apparatus, specifically in controlling the development bias voltage and stirring member rotational speed based on the detection of the capacity of the recycle toner in addition to the rotational torque of the stirring member. By detecting the capacity of the recycle toner in addition to the rotational torque,

the dominant cause of the change of the degree of toner agglomeration within the developing device can be determined to be either 1) deterioration of toner, or 2) an excessive supply of recycle toner. Based on this detection, an appropriate control operation of the development bias voltage and stirring member rotational speed can be performed as recited in claim 1. The effect of this appropriate control is to reduce fog on paper, and scatter of toner. Kimura I and Kimura II, failing to recite detection of the capacity of the recycle toner, fail to suggest any appropriate control based on such detection, and thus advantages in reducing fog and toner scatter.

Independent claim 4 recites "detecting rotational torque of a stirring member disposed within a developing device and capacity of a recycle toner supplied into the developing device", and thus is patentable for reasons analogous to claim 1. The dependent claims are patentable for at least the same reasons as their respective independent claims, as well as for further patentable features recited therein.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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